3595

PIONEER
The Art of Entertainment

Service Manual

ORDER NO.
CRT1432

ELECTRONIC CROSSOVER NETWORK

CD-635 UC, E

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SPECIFICATIONS

Power source	DC 14.4 V (10.8 – 15.6 V allowable)
Grounding system	Negative type
Dimensions	178 (W) x 25 (H) x 150 (D) mm [7 (W) x1 (H) x 5-7/8 (D) in.]
Weight	0.8 kg (1.8 lbs.)
Gain	0dB
Level control	LOW: –15 dB – +15 dB MID: –12 dB – +12 dB HIGH: –12 dB – +12 dB
Frequency response	10 Hz – 30,000 Hz (±1 dB)
Distortion	0.05 % (1 kHz, 500 mV)
Signal-to-noise ratio	101 dB (IHF-A network)
Crossover frequency	LOW/MID (x 1): 50 Hz – 200 Hz (x 10): 500 Hz – 2,000 Hz MID/HIGH: 3 kHz – 10 kHz
Crossover slope	–12 dB/octave
Phase switch	LOW: 0/180° HIGH: 0/180°
Nominal input level	500 mV
Maximum input level	2 V
input impedance	10 kΩ
Maximum output level	2 V
Output impedance	1 kΩ

These specifications were determined and are presented in accordance with specification standards established by the Ad Hoc Committee of Car Stereo Manufacturers.

Note:
Specifications and the design are subject to possible modification without notice due to improvements.

FEATURES

- This device is a crossover network for multiple channel speaker system. It divides playback frequency into two or three ranges to enable the specially designed amplifiers and speakers to provide such 2- or 3-way playback.
- The crossover frequency can be adjusted as desired between LOW to MID range and MID to HIGH range. As the phase of the LOW range output and the HIGH range output can be switched, the acoustic characteristics can be set to suit the interior of the car or the speakers that are used.
- The sound level can be controlled with dials for each of LOW, MID and HIGH ranges according to the power amplifiers and speakers used as well as the interior condition.
- Input and output terminals are plated with highly electricity-conductible gold for improved tone.
- LOW OUTPUT can be set to either stereo or monaural according to the power amplifier and sub-woofer used.

Important
The serial number of this device is located on the bottom of the unit. For your own security and convenience, be sure to record this number on the enclosed warranty card.

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 2740 Beveren, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

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EK NOV. 1991 Printed in Japan

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SAFETY INFORMATION

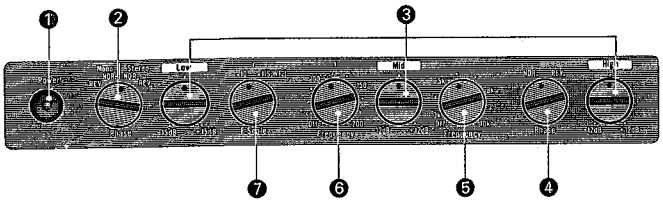
CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

1. CONTROLS AND THEIR USE



❶ Power indicator

Lighted with power on.

❷ LOW OUTPUT phase switch/LOW OUTPUT stereo-monaural switch (for sub-woofer)

Use this switch for LOW OUTPUT phase change and stereo-monaural selection. Select the output first and then change the phase.

Stereo-monaural switching (for sub-woofer)

Select STEREO for stereo or MONO for monaural output according to the amplifier and sub-woofer used.

- Be sure to select STEREO when using a woofer for LOW OUTPUT.

Phase switching

Select NOR for normal phase or REV for reversal phase according to the location of speaker and the interior condition.

❸ Sound level control

The level of output sound varies depending on the amplifiers and speakers used. Use these switches to obtain well-balanced tone.

LOW: LOW OUTPUT sound level control
MID: MID OUTPUT sound level control
HIGH: HIGH OUTPUT sound level control

- Avoid to leave all controls in minus direction to prevent unnecessary check on amplifier performance. Set at least one switch pass the center point in plus direction.

❹ HIGH OUTPUT phase switch

Use this switch to change HIGH OUTPUT phase. Select NOR for normal phase and REV for reversal phase according to the location of speaker and the interior condition.

❺ Adjustment of the MID range–HIGH range crossover frequency

The crossover frequencies of the highest MID range and the lowest HIGH range can be adjusted as desired. When setting this switch to the OFF position, the crossover function will not work for the MID–HIGH range, but the HIGH range will be output through the MID OUTPUT.

- With this switch off, HIGH OUTPUT does not function either, nor do HIGH OUTPUT adjustment of sound level control ❸ and HIGH OUTPUT phase change ❹ function.

❻ Adjustment of the LOW range–MID range crossover frequency

The crossover frequencies of the highest LOW range and the lowest MID range can be adjusted as desired. Also, by using the frequency scale switch of ❼, the crossover frequency can be switched from 500 Hz to 2,000 Hz and from 50 Hz to 200 Hz. When setting this switch to OFF position, the crossover function will not work fot the LOW-MID range, but the LOW range will be output through the MID OUTPUT.

- With this switch off, LOW OUTPUT does not function either, nor do LOW OUTPUT adjustment of sound level control ❸, ❷ and ❼ function.

❼ Frequency scale switch

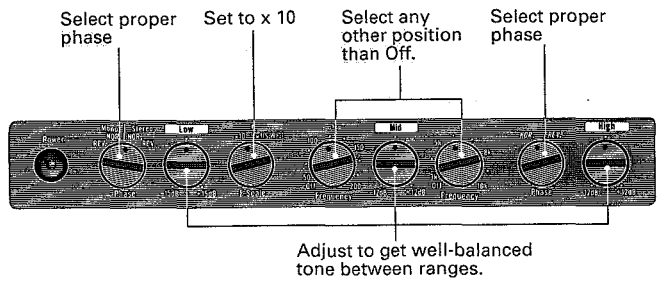
This switch can be used for selecting the woofers or the sub-woofers among the speakers used for the LOW OUTPUT. When switching to × 10, the crossover frequency for LOW range to MID range in ❻ will be switched from 500 Hz to 2,000 Hz, and the LOW range output will be in the frequency range for woofers. When switching to × 1, the crossover frequency will be switched from 50 Hz to 200 Hz, and the LOW range output will be in the frequency range for sub-woofers.

Adjust Car Stereo before Adjusting This Unit

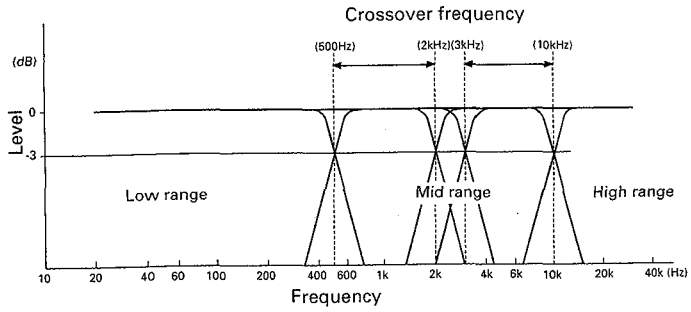
1. Set bass, treble and balance control to center.
   - Turn off an equalizer if used.
2. Switch off loudness.
3. Turn on tuner and cassette deck. Be certain to playback in the correct fashion in terms of noise reduction (Dolby NR or not) and the type of tape used.

2. ADJUSTING THE UNIT

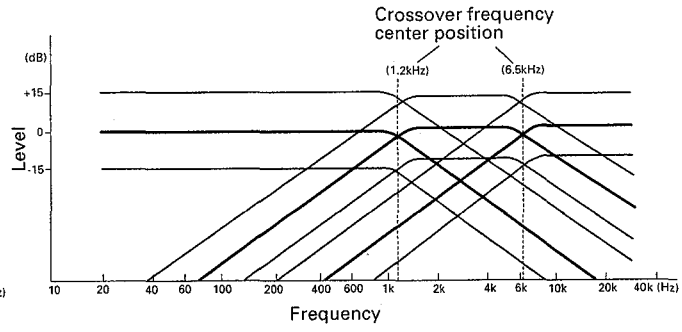
Three-way system, Type 1 (woofer + mid range + tweeter/super tweeter)


Select proper phase
Set to x 10
Select any other position than Off.
Select proper phase
Adjust to get well-balanced tone between ranges.

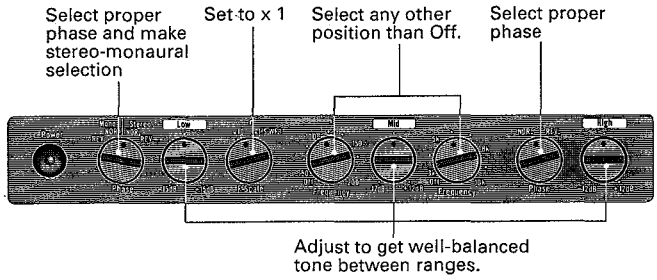
Characteristics of crossover frequencies



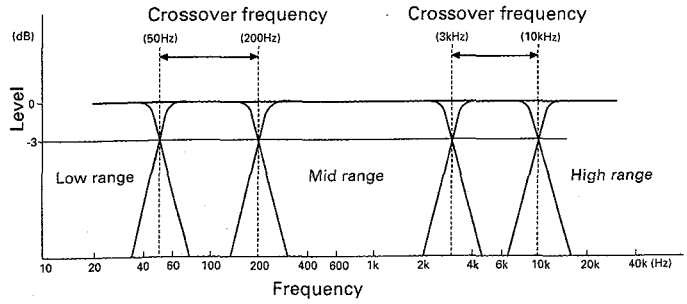
Characteristics of level control



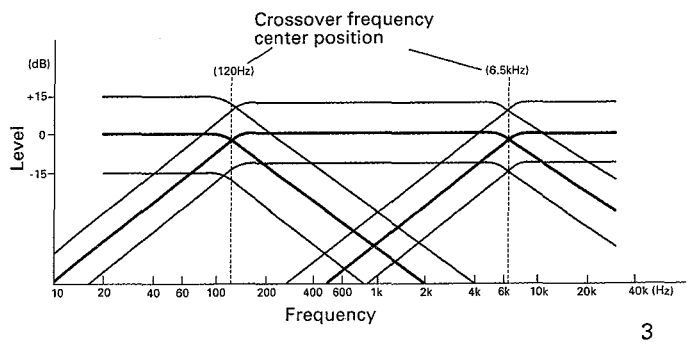
Three-way system, Type 2 (sub-woofer + woofer/mid range + tweeter/super tweeter)


Select proper phase and make stereo-monaural selection
Set to x 1
Select any other position than Off.
Select proper phase
Adjust to get well-balanced tone between ranges.

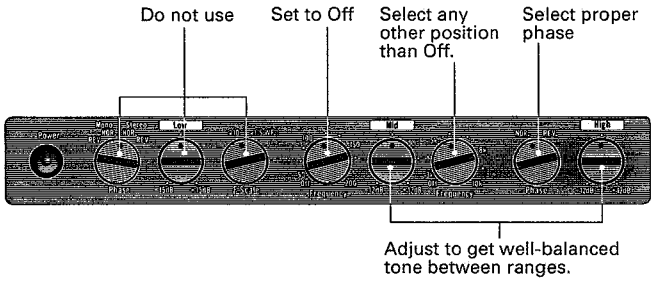
Characteristics of crossover frequencies



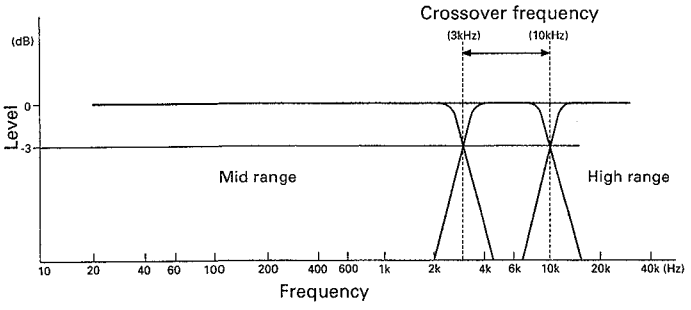
Characteristics of level control



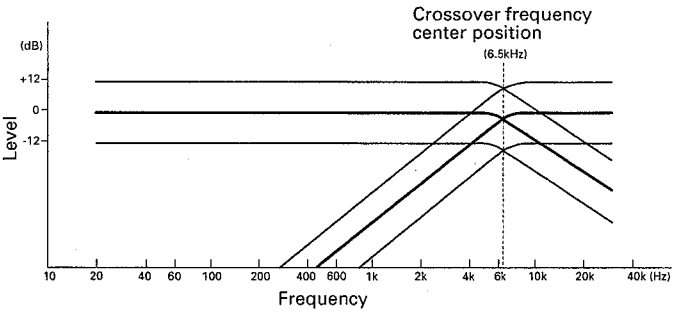
Two-way system, Type 1 (full range + super tweeter/tweeter)


Do not use
Set to Off
Select any other position than Off.
Select proper phase
Adjust to get well-balanced tone between ranges.

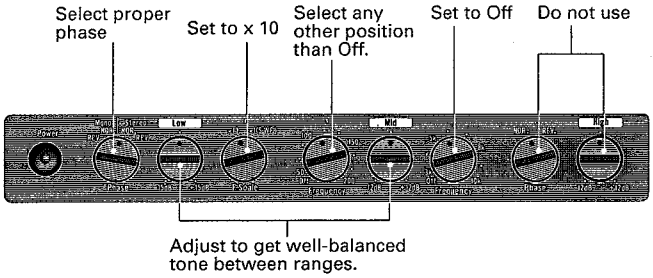
Characteristics of crossover frequencies



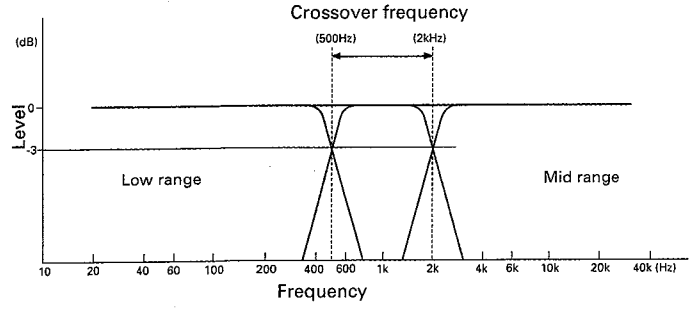
Characteristics of level control



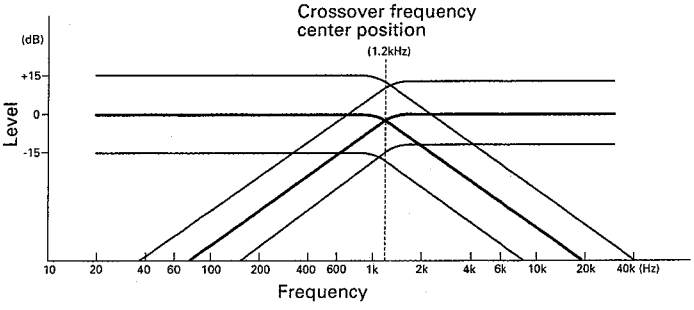
Two-way system, Type 2 (woofer + tweeter)


Select proper phase
Set to x 10
Select any other position than Off.
Set to Off
Do not use
Adjust to get well-balanced tone between ranges.

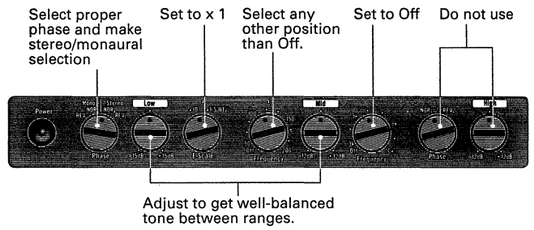
Characteristics of crossover frequencies



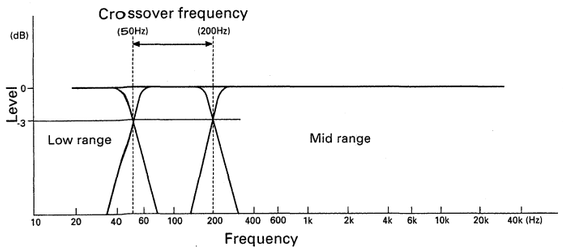
Characteristics of level control



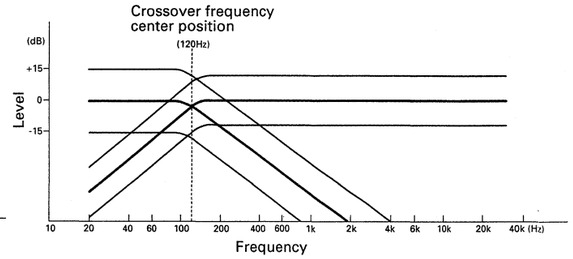
Two-way system, Type 3 (sub-woofer + full range)


Select proper phase and make stereo/monaural selection
Set to x 1
Select any other position than Off.
Set to Off
Do not use
Adjust to get well-balanced tone between ranges.

Characteristics of crossover frequencies



Characteristics of level control



3. ELECTRICAL PARTS LIST

NOTE:

- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *The part numbers shown below indicate chip components.*

Chip Resistor

RS1/□S□□□J,RS1/□□S□□□J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

Unit Number :
Unit Name : P.C.Board Kit

MISCELLANEOUS

Circuit	Symbol & No.	Part Name	Part No.
IC	1		CWV1030
IC	2 3 4 5 6 7 8 9		UPC4570HA
IC	10 11 12 13		UPC4570HA
IC	14 15		TC4066BP
IC	16		M51957BL
Q	1 2 3 4 5 6		DTC114TL
Q	7		2SD1859
Q	8		2SD2005
Q	9 11		2SB1243
Q	10 12		2SC4038
Q	13 15		DTC124TL
Q	14		DTA144TL
Q	17 18		2SA1561
D	1		HZS7LB3
D	2		HZS9LA1
D	3 4		ERA15-002VH
D	6		HZS7A3
D	7	LEDAssy	CZX2040
D	8		HZS11LA3
D	9		HZS7B3
D	10 11 12 13		1SS133
L	1 2	Ferri-Inductor	CTF1007
L	3	ChokeCoil	CTH1016
SW	1	Switch(F.Scale)	CZS2040
SW	2	Switch(PhaseMono-Stereo)	CZS2017
SW	3	Switch(PhaseNor-Rev)	CZS2020
VR	2 4	Volume/Switch5kΩ(C)	CZC2040
VR	3 5 6	Volume50kΩ(B)	CZC2020

RESISTORS

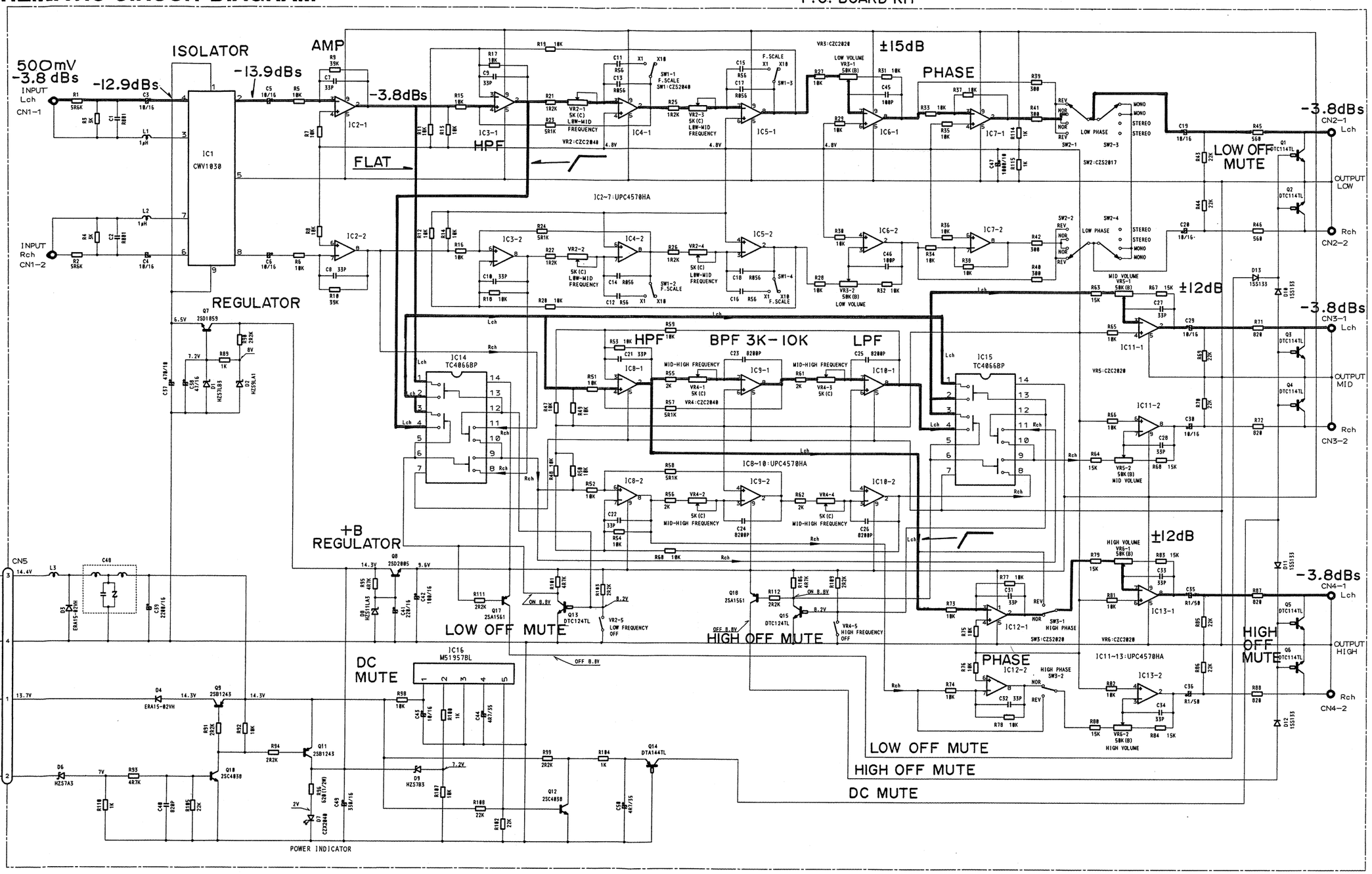
Circuit	Symbol & No.	Part Name	Part No.
R	1 2		RS1/10S562J
R	3 4		RS1/10S302J
R	5 6 7 8		RS1/10S103J
R	9 10		RS1/10S393J
R	11 12 13 14 15 16		RS1/10S103J
R	17 18 19 20		RS1/10S103J
R	21 22 25 26		RS1/10S122J
R	23 24 57 58		RS1/10S512J
R	27 28 29 30 31 32		RS1/10S103J
R	33 34 35 36 37 38		RS1/10S103J
R	39 40 41 42		RS1/10S301J
R	43 44 69 70		RS1/10S223J
R	45 46		RS1/10S561J
R	47 48 49 50		RS1/10S103J
R	51 52 53 54 59 60		RS1/10S103J
R	55 56 61 62		RS1/10S202J
R	63 64 67 68 79 80 83 84		RS1/10S153J
R	65 66 73 74		RS1/10S103J
R	71 72 87 88		RS1/10S821J
R	75 76 77 78 81 82 92 98 107		RS1/10S103J
R	85 86 102 105 108		RS1/10S223J
R	89 100 104 110 114 115		RS1/10S102J
R	90 91 94 99 103 109 111 112		RS1/10S222J
R	93 95 101 106		RS1/10S472J
R	96		RD1/2PS621JL

CAPACITORS

Circuit	Symbol & No.	Part Name	Part No.
C	1 2		CKSQYB102K50
C	3 4 5 6 19 20 29 30 43		CEA100M16L2
C	7 8 9 10 21 22 27 28 31 32		CCSQCH330J50
C	11 12 15 16		CQFA564J50L
C	13 14 17 18		CQFA563J50L
C	23 24 25 26		CQMA822J50
C	33 34		CCSQCH330J50
C	35 36		CEA0R1M50L2
C	37		CEA471M10L2
C	38		CEA470M16L2
C	39	2200μF/16V	CZC2013
C	40		CKSQYB821K50
C	41		CEA221M1612
C	42		CEA101M16L2
C	44		CEA4R7M35L2
C	45 46		CCSQCH101J50
C	47	1000μF/10V	CZC2015
C	48		CZC2010
C	49		CEA331M16L2
C	50		CEA4R7M35L2

4. SCHEMATIC CIRCUIT DIAGRAM

P.C. BOARD KIT



NOTE:

Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.

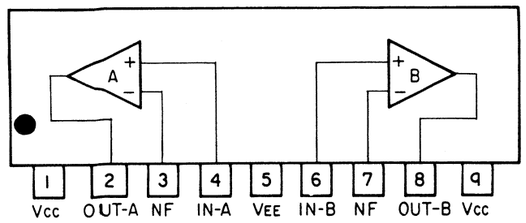
Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

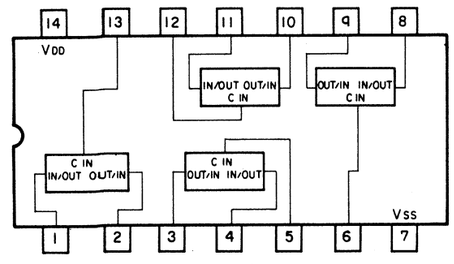
Fig. 1

5. CONNECTION DIAGRAM

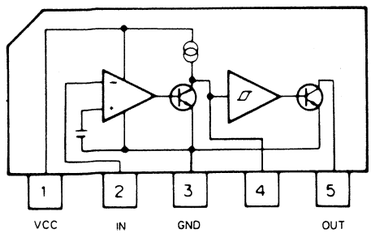
UPC4570H A



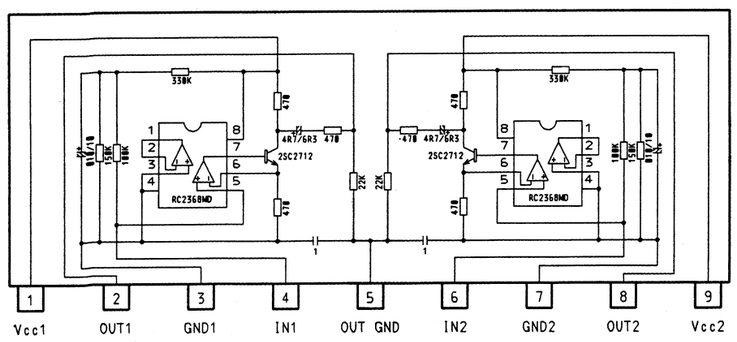
TC4066BP



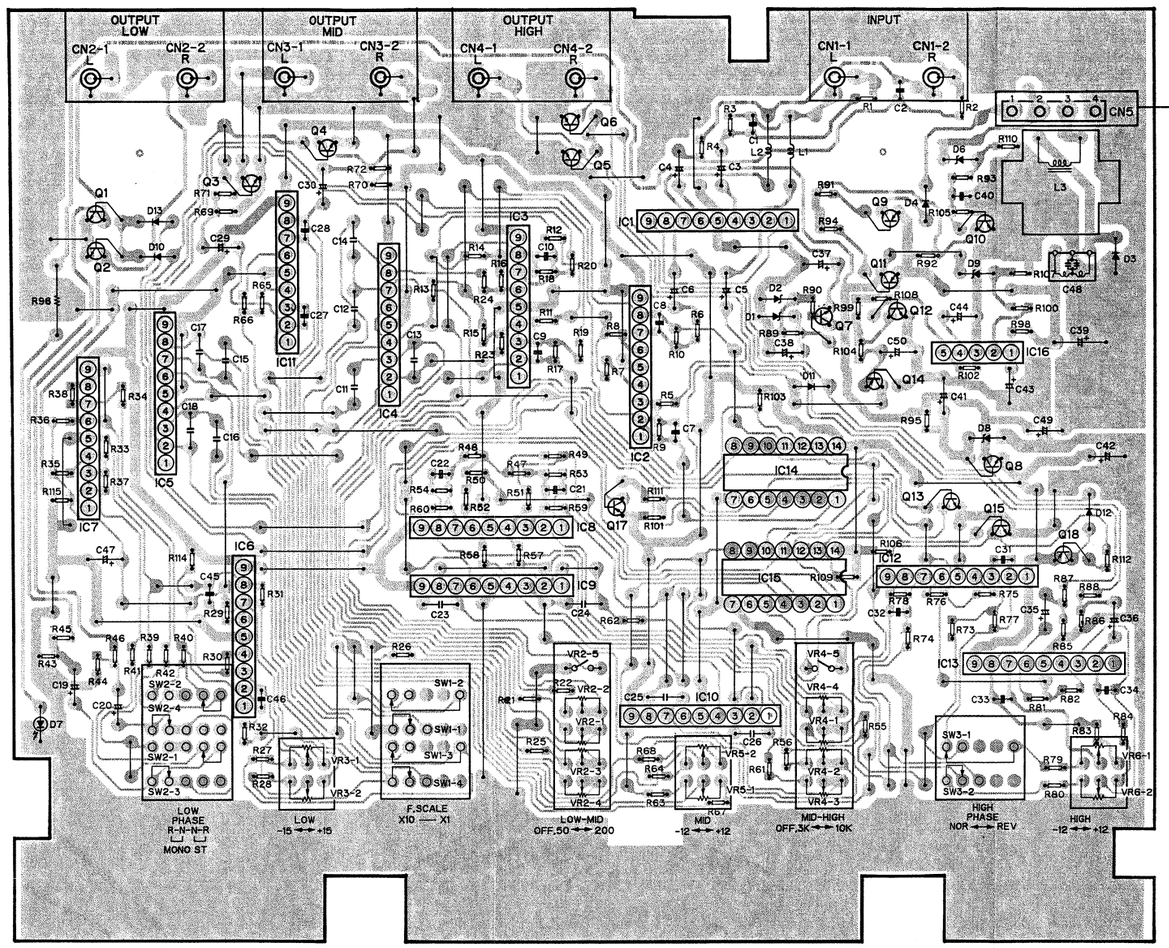
M51957BL



CWV1030



IC. Q IC7 Q2 Q1 IC5 IC6 Q3 IC11 Q4 IC4 IC8 IC9 IC3 Q5 Q6 Q17 IC2 IC1 IC10 IC14 IC15 Q7 Q11 Q14 Q9 Q12 IC12 Q13 Q8 Q15 Q10 IC16 Q18 IC13



P.C. BOARD KIT

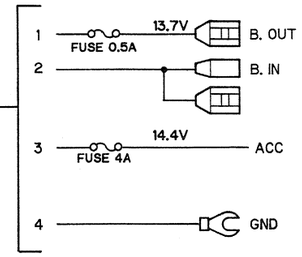


Fig. 2

6. EXPLODED VIEW

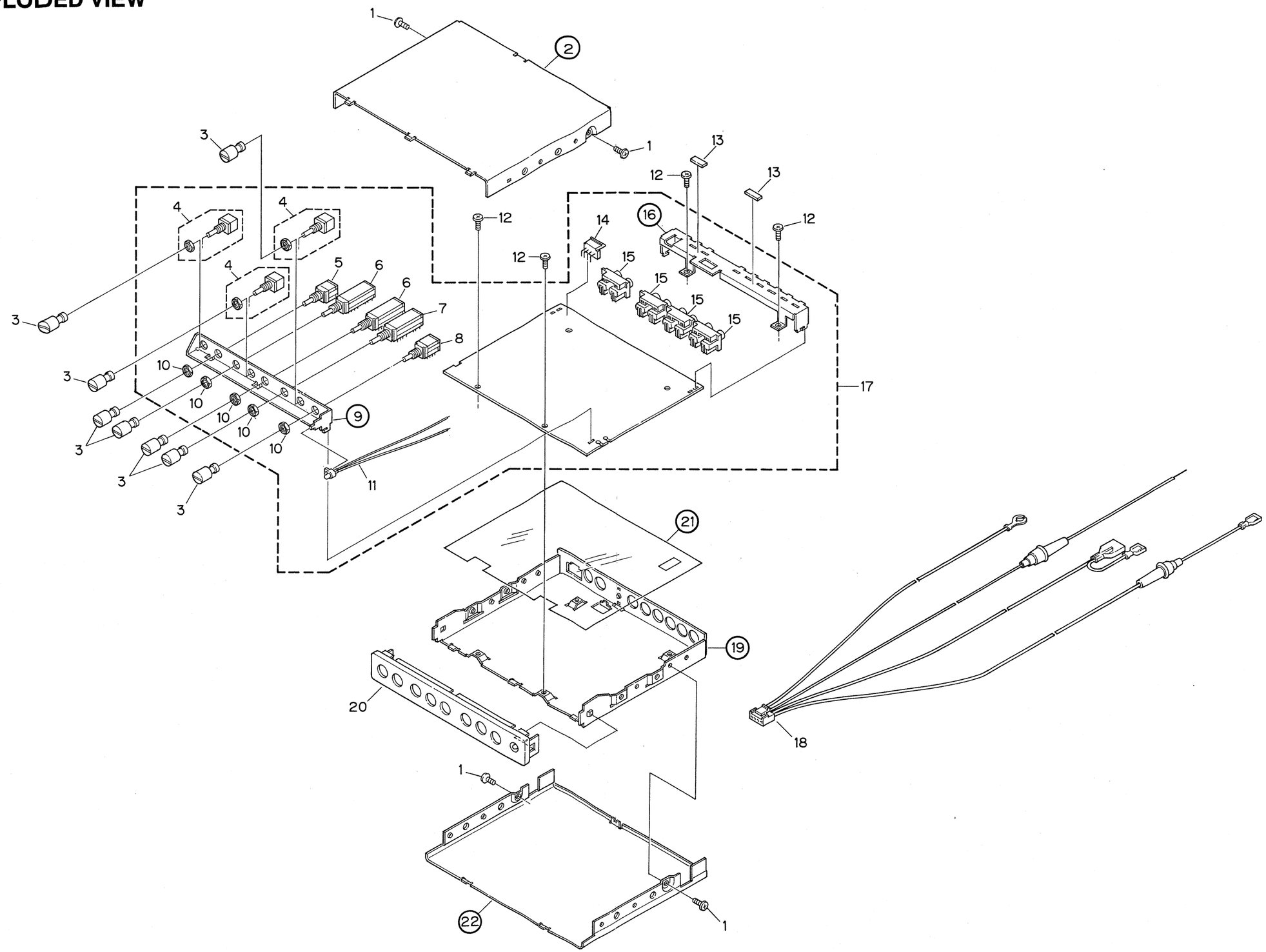


Fig. 3

NOTE:

- *The parts marked with "◉" may need long time to supply and their supply is subject to refuse as the case may be.*
- *Because the parts with encircled number shown on the dismantling drawing are not spare parts, we are unable to supply them in principle.*

•Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Screw	PMZ30P050FZK		16	Bracket	CZN6101
	2	Case	CZN6098	◉	17	P.C.Board Kit	CZW3181
	3	Knob	CAA1135		18	Connector Assy	CZD3188
	4	Volume	CZC2020		19	Chassis	CZN6099
	5	Switch(PHASE NOR-R)	CZS2020		20	Grille Unit	CZX3106
	6	Volume	CZC2040		21	Insulator	CZE2086
	7	Switch(F. Scale)	CZS2040		22	Case	CZN6103
	8	Switch(PHASE MONO-S)	CZS2017				
	9	Bracket	CZN3202				
	10	Nut	CZB2007				
	11	LED Assy	CZX2040				
	12	Screw	PMB26P050FMC				
	13	Spacer	CZN3209				
	14	Plug(4P)	CZK2028				
	15	Connector	CZK2010				

7. PACKING METHOD

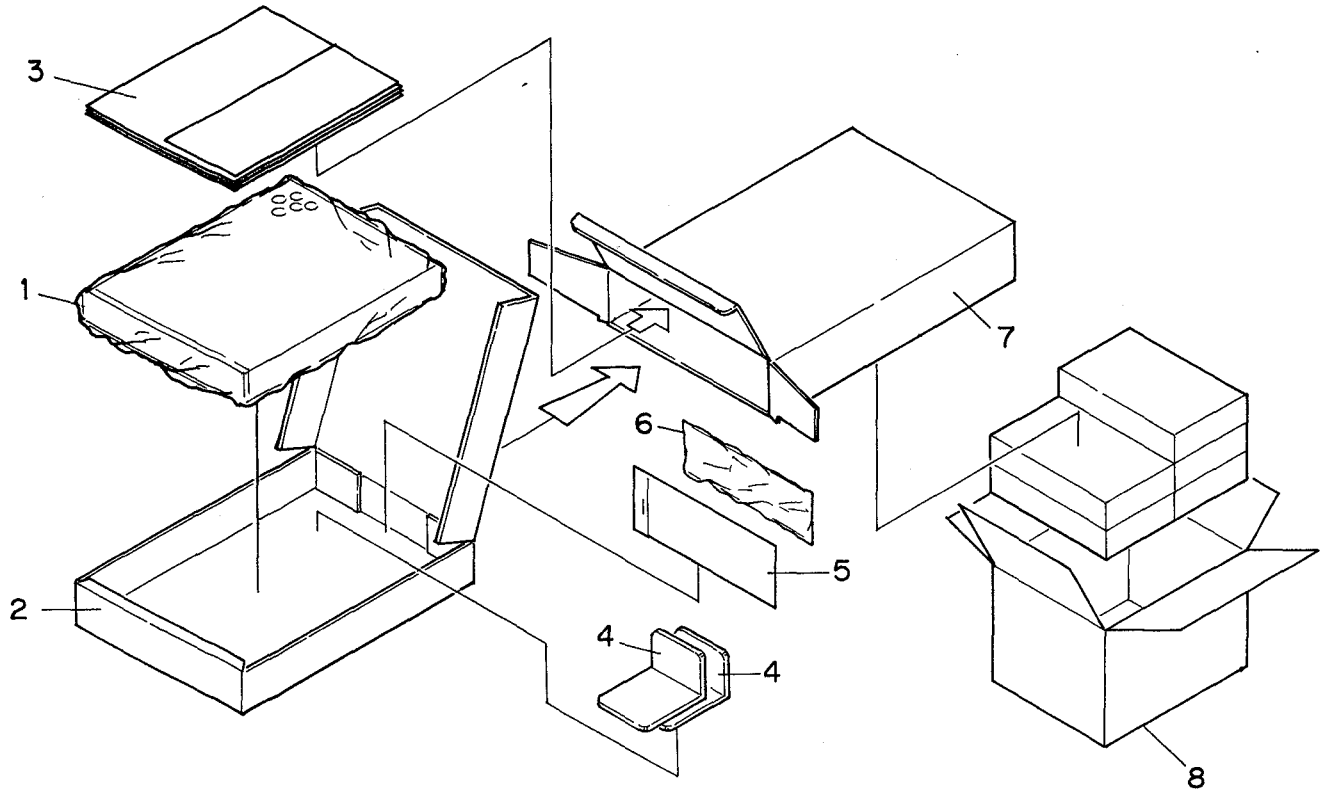


Fig. 4

•Parts List

＊ : Non Spare Part

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1-1	Cover	CEG-157		5-3	Screw(×4)	RWC51P160FZK
	1-2	Air Cap	CZE2034		5-4	Nut(×4)	NF50FMC
	2	Pasteboard	CZH3167	＊	5-5	Polyethylene Bag	CEG-127
	3-1	Owner's Manual(UC)	CZR3118		6	Connector Assy	CZD3188
		Owner's Manual(E)	CZR3111		7	Carton(UC)	CZH3290
＊	3-2	Card(UC)	ARY1048			Carton(E)	CZH3270
	4	Mounting Bracket	CZN3208		8	Contain Box(UC)	CZH3291
	5	Accessory Assy	CZE2035				
	5-1	Screw(×4)	HMF40P080FZK				
	5-2	Screw(×4)	PMB50Y160FMC				

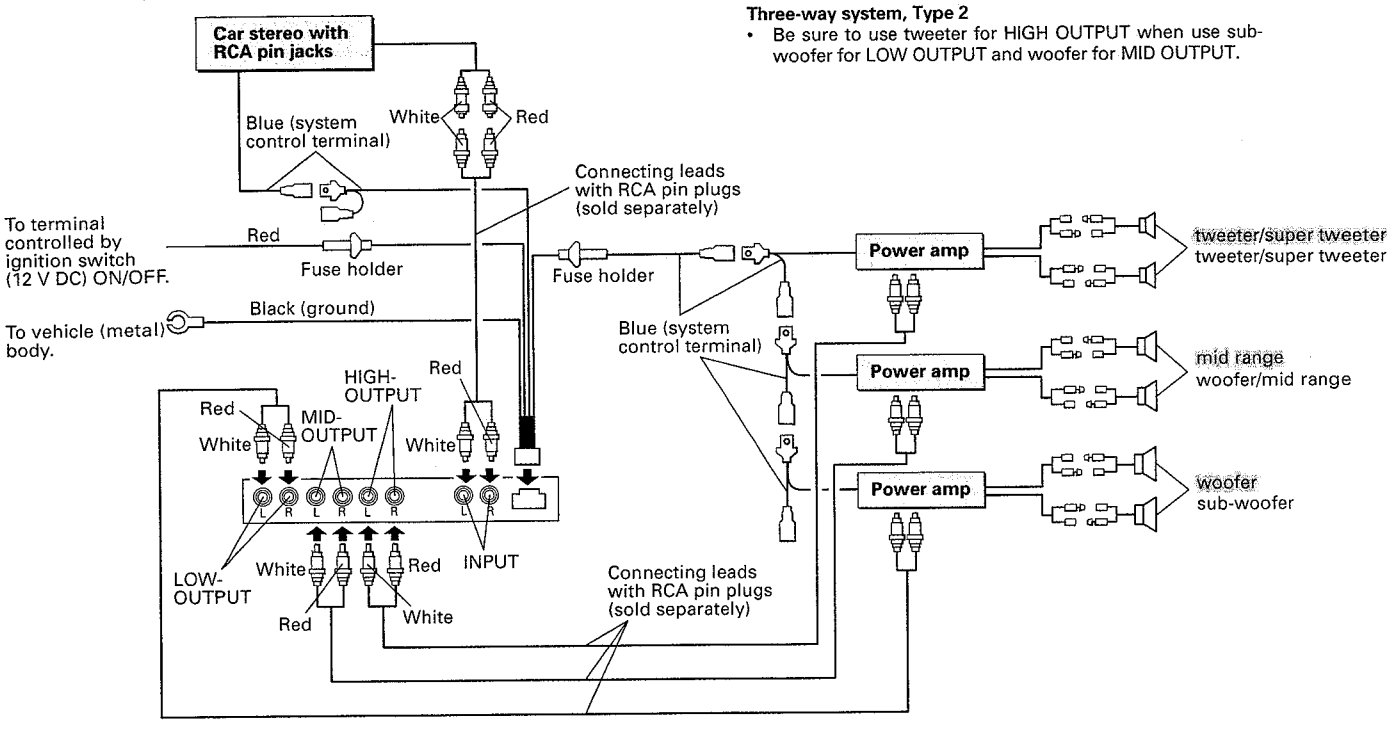
NOTE:

3-1 Owner's Manual

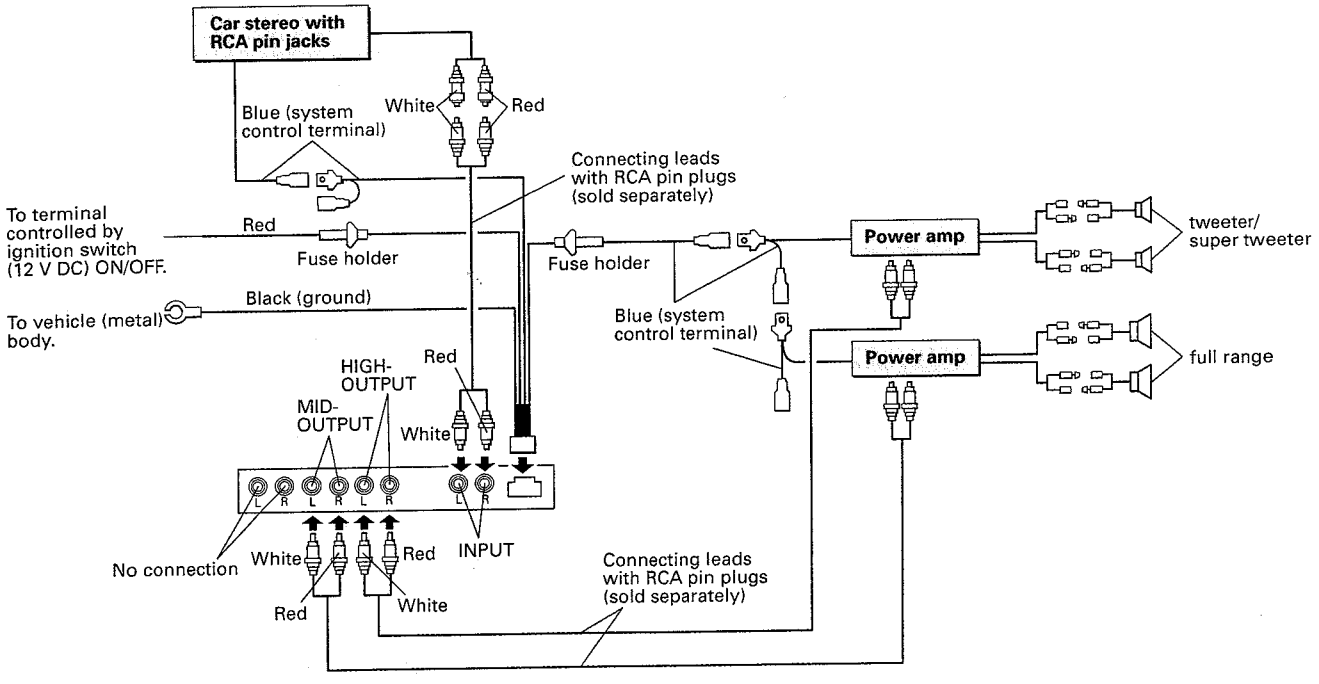
Part No.	Model	Language
CZR3118	CD-635/UC	English, French
CZR3111	CD-635/E	English, French, German, Spanish, Italian

8. CONNECTING THE UNIT

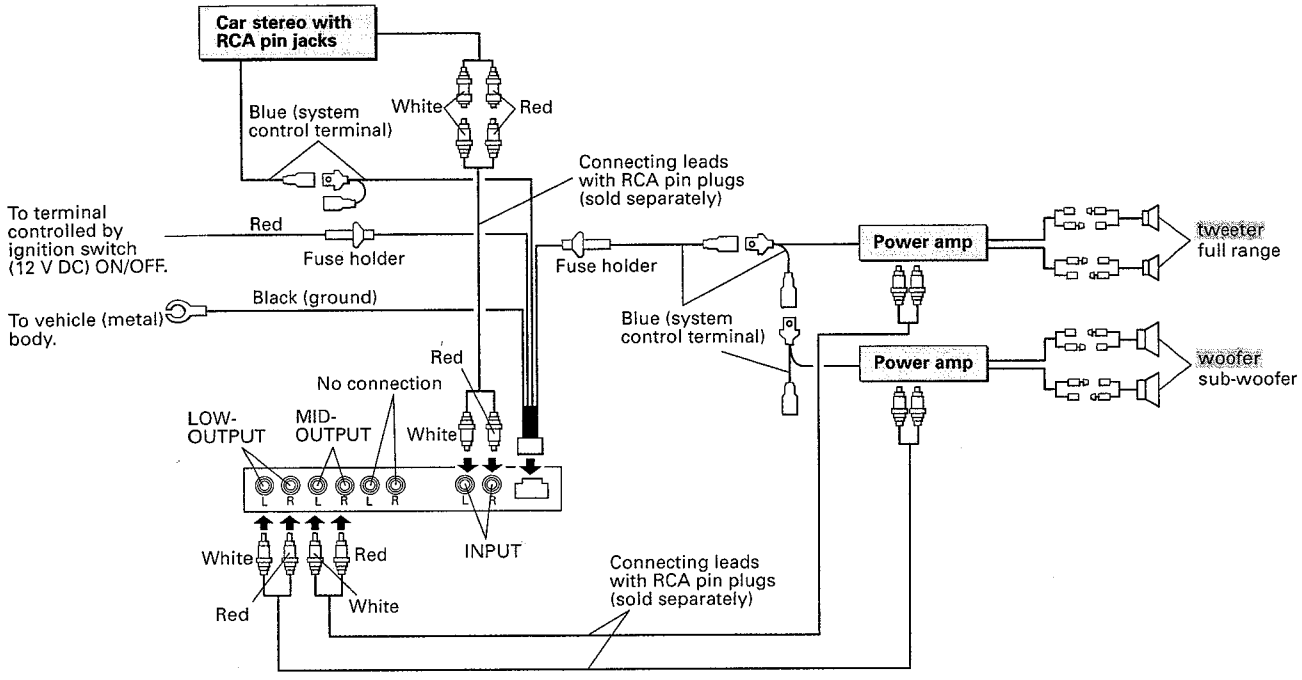
Three-way system, Type 1 (woofer + mid range + tweeter/super tweeter)
Three-way system, Type 2 (sub-woofer + woofer/mid range + tweeter/super tweeter)



Two-way system, Type 1 (full range + tweeter/super tweeter)

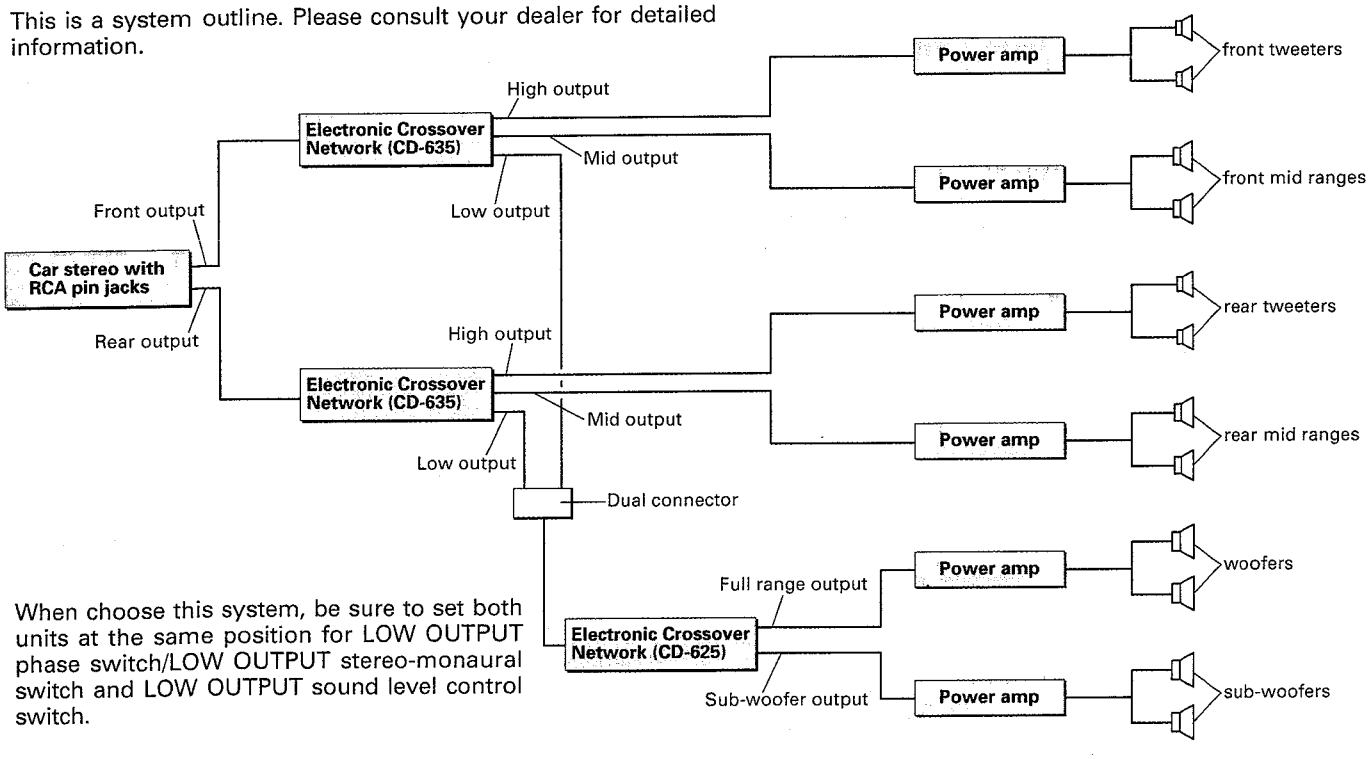


Two-way system, Type 2 (woofer + tweeter)
Two-way system, Type 3 (sub-woofer + full range)



An upgraded system: 4-channel 4-way multiple purpose system (example)

- This is a system outline. Please consult your dealer for detailed information.



- When choose this system, be sure to set both units at the same position for LOW OUTPUT phase switch/LOW OUTPUT stereo-monaural switch and LOW OUTPUT sound level control switch.